CLAIMS

Having thus described the aforementioned invention, we claim:

1. A protection barrier comprising:

an elongated barrier defining a chamber therein, said barrier having first and second side walls, each of said first and second side walls including a plurality of non-vertical wall segments disposed thereon;

a guide carried by each of said first and second side walls, said guide being positioned in horizontal alignment with similar sized guides on like-configured barriers; and

a coupling disposed on each opposed end of said barrier, said coupling for connecting juxtaposed end-to-end arrangement of like-configured barriers.

2. The protection barrier of Claim 1 further comprising:

said barrier having a base and a top surface, said chamber extended in said barrier between said base and said top surface;

said first and second side walls each including said plurality of non-vertical wall segments being disposed between said base and said top surface; and

a plurality of buttresses positioned vertically at spaced apart locations along said first and second side walls, each of said plurality of buttresses having an opening therethrough, said opening aligned with said guide carried by said first and second side walls.

3. The protection barrier of Claim 2 wherein said guide including:

a guide channel bounded horizontal by two adjacent wall segments of said plurality of non-vertical wall segments, said guide channel horizontally aligned with each opening through each buttress; and

a tube removably extended through said guide channel and through each opening through each buttress;

whereby upon an impact of a vehicle with one of said first or second side walls, said tube and guide channel are impacted with resulting destruction of said tube within said guide channel and with resulting distribution of impact energy along said guide channel and said two adjacent wall segments of said first and second side walls.

4. The protection barrier of Claim 1 further comprising:

said barrier having a base, a top surface and first and second ends, said chamber extended in said barrier between said base, said top surface and said first and second ends;

said first and second side walls each including said plurality of non-vertical wall segments being disposed between said base and said top surface;

said first and second ends having beveled corners;

said guide including an upper guide channel aligned parallel with a lower guide channel, said upper and lower guide channels are spaced apart horizontally between an upper wall segment and a lower wall segment of said plurality of non-vertical wall segments; and

a plurality of buttresses positioned vertically at spaced apart locations along

said first and second side walls; each of said plurality of buttresses having an upper opening and a lower opening therethrough, said upper opening of each buttress being aligned with said upper guide channel, said lower opening of each buttress being aligned with said lower guide channel.

5. The protection barrier of Claim 4 wherein said guide channels including:

an upper tube removably extended through said upper guide channel and through each respective upper opening of each buttress; and

a lower tube removably extended through said lower guide channel and through each respective lower opening of each buttress;

whereby upon an impact of a vehicle with one of said first or second side walls, said upper tube and said lower tube are impacted with resulting destruction of said upper tube and said lower tube with resulting distribution of impact energy along said upper channel and said lower channel of said of said plurality of non-vertical wall segments.

6. The protection barrier of Claim 4 wherein said coupling including:

a tongue extended from each opposed end, said tongue extending vertically between said base and said top surface of said barrier, said tongue extended from an off-center portion of each end; and

a groove indentation in each opposed end, said groove extending vertically between said base to said top surface of said barrier, said groove and said tongue having one contiguous surface;

said beveled corners provide for pivotable movement of said tongue of a first barrier end relative to a like-configured groove of a like-configured second barrier end when said tongue of either end of said first barrier is removably inserted into said groove of either end of the like-configured second barrier for an end-to-end nesting relationship of a plurality of like-configured barriers.

7. The protection barrier of Claim 1 wherein said barrier is composed of polyethylene material of sufficient density for said barrier to be substantially rigid.

8. A protection barrier comprising:

an elongated barrier defining a chamber therein, said barrier having a base, a top surface, first and second side walls, and first and second ends;

each of said first and second side walls including:

a plurality of non-vertical wall segments connected end-to-end collectively defining a side wall surface;

a plurality of buttresses extending vertically in spaced apart locations along said side wall surface; and

interconnection means extending vertically along each first and second ends, whereby said first and second ends are detachably interconnectable with like-configured interconnection means of either first and second ends of like-configured barriers.

9. The protection barrier of Claim 8 further comprising:

said plurality of non-vertical wall segments including:

an upper guide channel horizontally disposed along each side wall surface;

a lower guide channel horizontally disposed along said side wall surface; and

each of said buttresses having an upper opening and a lower opening therethrough, said upper openings being in horizontal alignment with said upper guide channel and said lower openings being in horizontal alignment with said lower guide channel along said side wall surface.

10. The protection barrier of Claim 9 wherein said elongated barrier is composed of polyethylene material having sufficient density for said first and second side walls to be substantially rigid.

11. The protection barrier of Claim 10 wherein said interconnection means including:

a tongue extended from said first end, said tongue extending vertically from said first end between said base to said top surface of said barrier, said tongue extended from an off-center portion of said first end;

an opposed tongue disposed from said second end in a mirror-image configuration of said first end;

a groove indentation in said first end extending vertically along said first end between said base to said top surface of said barrier;

an opposed groove extension disposed in said second end in a mirror-image configuration of said first end; and

said first and second ends having beveled corners, said beveled corners provide for pivotable movement of said tongue of either said first or second end relative to a groove indentation of a like-configured second barrier end when said tongue of either said first or second end of a first barrier is removably inserted into the groove indentation of either end of a like-configured first or second end of the like-configured second barrier, said second end tongue is removably insertable into the groove indentation in either like-configured first or second end of the like-configured barrier for an end-to-end nesting relationship of like-configured barriers.

12. The protection barrier of Claim 11 wherein said first and second side walls including:

an upper tube removably extended through each respective upper opening in said plurality of buttresses and said upper guide channel; and

a lower tube removably extended through each respective lower opening in said plurality of buttresses and said lower guide channel;

whereby upon an impact of a vehicle with one of said first or second side walls, said upper tube and said lower tube are impacted with resulting destruction of said upper tube and said lower tube with resulting distribution of impact energy along said upper guide channel and said lower guide channel of the impacted first or second side walls.

13. The protection barrier of Claim 12 wherein said first and second side wall including:

said side wall surface inwardly angled from said base to said top surface;

a first cable inserted through said upper tube, said first cable extended through each upper tube of respective like-configured barriers when a plurality of like-configured barriers are interconnected end to end; and

a second cable inserted through said lower tube, said second cable extended through each lower tube of respective like-configured barriers when a plurality of like-configured barriers are interconnected end to end.

14. A protection barrier comprising:

an elongated barrier having a chamber therein, said barrier having a base, a top surface, first and second side walls, and first and second ends having beveled corners;

each of said first and second side walls having a plurality of non-vertical wall segments disposed thereon;

a plurality of buttresses positioned vertically at spaced apart locations along said first and second side walls, each buttress having an upper opening and a spaced apart lower opening therethrough, each upper opening and each lower opening are aligned with respective upper openings and lower openings in adjacent buttresses; and

interconnection means disposed on opposed ends of said barrier, said interconnection means for connecting juxtaposed end-to-end arrangement of like-configured barriers;

whereby said chamber in said barrier is filled with ballast to any of a plurality of heights in said chamber during stationary use of said protection barrier when said interconnection means on opposed ends are connected with like-configured barriers.

15. The protection barrier of Claim 14 wherein said plurality of non-vertical wall segments including:

an upper guide channel disposed horizontally between said buttresses along each side wall, said first guide channel aligned with said upper opening through each buttress; and

a tube removably inserted through said upper opening in each buttress and through said upper guide channel disposed along each side wall, whereby said tube provides reinforced structural rigidity for each side wall.

16. The protection barrier of Claim 15 wherein said plurality of non-vertical wall segments further including:

a lower guide channel disposed horizontally along each side wall, said lower guide channel being aligned with said lower openings through each buttress; and

a lower tube removably inserted through said lower opening in each buttress and through said lower guide channel disposed along each side wall, whereby said lower tube provides reinforced structural rigidity for each side wall.

17. The protection barrier of Claim 16 wherein said barrier having an inlet for

receipt of ballast into said chamber, said inlet disposed through said top surface, and an outlet for release of ballast from said hollow interior, said outlet disposed on said first side wall or said second side wall adjacent said base, whereby said chamber is filled with ballast during stationary use.

18. The protection barrier of Claim 17 wherein said interconnection means including:

a tongue extended from said first end, said tongue extending vertically along said first end between said base to said top surface of said barrier, said second end having a like-configured tongue extended therefrom;

a groove indentation in each first end extending vertically along said first end between said base to said top surface of said barrier, said second end having a like-configured groove therein;

said beveled corners of said first and second ends provide for pivotable movement of said tongue of either said first or second end relative to a groove indentation of a like-configured second barrier end when said tongue of either said first or second end of a first barrier is removably inserted into the groove indentation of either like-configured first or second ends of the like-configured second barrier in the nested relationship with like-configured barriers; and

a connector member having a keyhole slot therein, said connector member is pivotably disposed on an end post extended from said barrier top surface proximal to each opposed first and second ends of said barrier;

whereby said tongue of said first end of one barrier is removably inserted into said groove indentation of either of a like-configured first and second end of a

similar configured barrier, said connector member is removably disposed to bind each respective tongue inserted in each respective groove indentation in like-configured ends of like-configured barriers.

19. A protection barrier system for positioning adjacent an immovable structure, comprising:

an elongated barrier having a hollow chamber therein, said barrier having a base, a top surface, first and second side walls, and first and second ends having beveled corners;

a plurality of non-vertical wall segments disposed in connecting relationship defining a side wall surface of said first side wall, said non-vertical wall segments having an upper guide channel and a lower guide channel disposed horizontally between said wall segments, said upper and lower guide channels extended horizontally between said first and second ends;

a plurality of buttresses positioned vertically at spaced apart locations along said first side wall, each buttress having an upper opening and a spaced apart lower opening therethrough, each upper opening and each lower opening are aligned with respective upper openings and lower openings in adjacent buttresses;

interconnection means disposed on opposed ends of said barrier, said interconnection means for connecting juxtaposed end-to-end arrangement of like-configured barriers; and

said second side wall being substantially planar and opposed from said first side wall;

whereby said chamber in said barrier is filled with ballast to any of a

plurality of heights in said chamber during stationary use of said protection barrier having said planar second side wall disposed adjacent an immovable structure, said interconnection means on opposed ends are connectable in nested relationship with like-configured barriers.

20. The protection barrier system of Claim 19 wherein said interconnection means including:

a tongue extended from said first end, said tongue extending vertically along said first end between said base to said top surface of said barrier, said second end having a like-configured tongue extended therefrom; and

a groove indentation in each first end extending vertically along said first end between said base to said top surface of said barrier, said second end having a like-configured groove therein;

said beveled corners of said first and second ends provide for pivotable movement of said tongue of either said first or second end relative to a groove indentation of a like-configured second barrier end when said tongue of either said first or second end of a first barrier is removably inserted into the groove indentation of either like-configured first or second ends of the like-configured second barrier in the nested relationship with like-configured barriers; and

a connector member having a keyhole slot therein, said connector member is pivotably disposed on an end post extended from said barrier top surface proximal to each opposed first and second ends of said barrier;

whereby said tongue of said first end of one barrier is removably inserted into said groove indentation of either of a like-configured first and second end of a

similar configured barrier, said connector member is removably disposed to bind each respective tongue inserted in each respective groove indentation in like-configured ends of like-configured barriers.

21. The protection barrier system of Claim 20 wherein said upper and lower guide channels including:

said upper guide channel horizontally disposed in alignment with said upper openings of respective buttresses on said first side wall;

said lower guide channel horizontally disposed in alignment with said lower openings of respective buttresses on said first side wall;

an upper tube removably extended through each respective upper openings of respective buttresses and said upper guide channel; and

a lower tube removably extended through each respective lower openings of respective buttresses and said lower guide channel;

whereby upon an impact of a vehicle with said first side wall, said upper tube and said lower tube are impacted with resulting destruction of said upper tube, said lower tube and respective buttresses impacted with distribution of impact energy along said upper guide channel, said lower guide channel and said plurality of non-vertical wall segments of the impacted first side wall.

22. A protection barrier system comprising:

an elongated barrier having a chamber therein, said barrier having a base, a top surface, first and second side walls, and first and second ends;

each of said first and second side walls having a plurality of non-vertical wall segments disposed thereon;

a plurality of buttresses positioned vertically at spaced apart locations along said first and second side walls, each buttress having an upper opening and a spaced apart lower opening therethrough, each upper opening and each lower opening are aligned with respective upper openings and lower openings in adjacent buttresses; and

interconnection means disposed on opposed ends of said barrier, said interconnection means for connecting juxtaposed end-to-end nested arrangement of a plurality of like-configured barriers;

whereby said chamber in said barrier is filled with ballast to each of a plurality of heights in said chamber during stationary use of said barrier when said interconnection means on opposed ends are connected in end-to-end nested arrangement of a plurality of like-configured barriers.

23. The protection barrier system of Claim 22 wherein said interconnection means including:

a tongue extended from said first end, said tongue extending vertically along said first end between said base to said top surface of said barrier, said second end having a like-configured tongue extended therefrom; and

a groove indentation in each first end extending vertically along said first end between said base to said top surface of said barrier, said second end having a like-configured groove therein; and

a connector member having a keyhole slot therein, said connector member

is pivotably disposed on an end post extended from said barrier top surface proximal to either opposed first and second ends of said barrier;

whereby said tongue of said first end of said barrier is removably inserted into said groove indentation of either of a like-configured first and second end of a like-configured second barrier, said connector member is removably disposed to retain said tongue inserted in said groove indentation of either of the like-configured first and second ends of the end-to-end nested arrangement of the plurality of like-configured barriers.

24. The protection barrier system of Claim 23 wherein said plurality of non-vertical wall segments including:

an upper guide channel disposed horizontally between said buttresses along each side wall, said upper guide channel aligned with said upper opening through each buttress; and

an upper tube removably inserted through said upper opening in each buttress and through said upper guide channel disposed along each side wall, whereby said upper tube is aligned horizontally with tubes removably inserted through respective upper guide channels of the end-to-end nested arrangement of the plurality of like-configured barriers.

25. The protection barrier system of Claim 24 wherein said plurality of non-vertical wall segments further including:

a lower guide channel disposed horizontally along each side wall, said lower

guide channel being aligned with said lower openings through each buttress; and

a lower tube removably inserted through said lower opening in each buttress and through said lower guide channel disposed along each side wall, whereby said lower tube is aligned horizontally with tubes removably inserted through respective lower guide channels of the end-to-end nested arrangement of the plurality of like-configured barriers.

26. The protection barrier system of Claim 25, including:

an upper cable extended through said upper guide channel disposed along each side wall of like-configured end-to-end nested barriers;

a lower cable extended through said lower guide channel disposed along each side wall of like-configured end-to-end nested barriers; and

said upper cable and said lower cable being tensioned between opposed non-nested barrier ends of the end-to-end nested arrangement of a plurality of like-configured end-to-end nested barriers.

27. The protection barrier system of Claim 26, further including:

a first connector bracket disposed on one end of the non-nested barrier ends of the end-to-end nested arrangement of the plurality of like-configured nested barriers, said connector bracket having a plurality of side-mounted horizontal tubes disposed to align with said upper guide channels and said lower guide channels through which each cable is extended, each upper and lower cable having a cable end disposed through one of each of said side-mounted horizontal

tubes for attaching of connectors for retention of each cable end extended through respective upper and lower guide channels in the barrier abutting said first connector bracket; and

a second connector bracket disposed on the opposed end of the non-nested barrier ends of the end-to-end nested arrangement of the plurality of like-configured nested barriers, said second connector bracket having a plurality of side-mounted horizontal tubes disposed to align with said upper guide channels and said lower guide channels through which each cable is extended, each upper and lower cable having a distal cable end disposed through one of each side-mounted horizontal tubes for attaching of connectors for retention of each cable end extended through respective upper and lower guide channels in the barrier abutting said second connector bracket.

28. The protection barrier system of Claim 26, further including:

a first end member disposed proximal one end of the non-nested barrier ends of the plurality of like-configured nested barriers, said end member having first and second side walls aligned with each respective side wall of the adjacent nested barrier, said end member having an outer curved end and an inwardly arcuate end including:

a tongue extended from said arcuate end, said tongue extending vertically along said arcuate end; and

a groove indentation in said arcuate end, said groove indentation extending vertically along said arcuate end;

whereby said tongue and said groove indentation of said first

end member are disposed to mate with respective groove indentation and tongue of one of the non-nested barrier ends of the plurality of like-configured nested barriers;

said first and second side walls including a plurality of non-vertical wall segments disposed at heights comparable to said first and second side walls of the plurality of like-configured nested barriers;

a like-configured second end member disposed proximal an opposed non-nested barrier end of the plurality of like-configured nested barriers; and

said upper and lower cables disposed to extend from said first end member to said like-configured second end member, said upper and lower cables extended along each first and second side wall of the plurality of like-configured nested barriers.

29. A method of manufacture of a protection barrier comprising the steps of:

forming a barrier enclosing a chamber, said step of forming including positioning two side wall molds having exterior wall segments in opposed orientation and positioning two like-configured end segment molds on opposed ends of the two side wall molds;

injecting polyethylene material into said two side wall molds and into said two like-configured end segment molds to form said barrier having two side walls disposed in contacting orientation and having two like-configured end segments disposed in contacting relationship with the opposed ends of the two side wall molds;

bonding two like-configured side walls together, said step of bonding

providing a water-tight seam between said bonded side walls; and

joining two like-configured end segments to the opposed ends of said bonded side walls, said step of joining providing water-tight seams between each respective end segments and the opposed ends of said bonded side walls;

whereby said method providing a water-tight chamber within said barrier.

30. The method of manufacture of Claim 29 wherein said step of forming including the steps of:

combining a plurality of aligned end-to-end like-configured side wall molds in opposed orientation, said step of combining followed by positioning two like-configured end segment molds on opposed ends of said plurality of aligned end-to-end like-configured side wall molds; and

said step of forming including injecting polyethylene material into said plurality of aligned end-to-end like-configured side wall molds and said like-configured end segment molds;

whereby said method providing said water-tight chamber extending within said barrier.